

### REMARKS

This is in response to the Office Action of February 22, 2008. Claim 1 is amended to recite the features of claim 2, claim 2 is accordingly cancelled without prejudice, and the dependencies of claims 3 and 4 are adjusted. Claim 1 is also amended to recite the feature of claim 14, and claim 14 is accordingly cancelled. No new matter is introduced. Entry of this Amendment – in order to place the application into condition for allowance or into better condition for appeal – is earnestly solicited. Claims 1 and 3-13 remain pending in the application.

#### The invention

The present invention is not only novel but is also unobvious. The present invention does not simply employ a coefficient based on experimental data or a desorption rate of NO<sub>x</sub> measured. Instead, this invention improves the precision of estimating NO<sub>x</sub> occlusion amount by consistently renewing each coefficient of the polynomial. Nothing in the prior art cited by the Examiner suggests this approach.

#### Burden of proof and legal standard for obviousness rejection

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336, quoted with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

The question under 35 U.S.C. § 103(a) is not whether the differences between the prior art and the invention in and of *themselves* would have been obvious, but whether the claimed invention *as a whole* would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 218 USPQ 871 (Fed. Cir. 1983). The Supreme Court has held that “... a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was,

independently, known in the prior art.” *KSR International Co. v. Teleflex Inc.* 82 USPQ2d 1385 (U.S. 2007). The Court pointed out that this is so because inventions in most, if not all, instances rely upon building blocks long since uncovered. Newly claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

*Rejection over Sun in view of Deeba*

Claims 1, 6, and 11-13 were rejected under 35 U.S.C. § 102(a) as being unpatentable over US 6,826,902 B2 to Sun et al. (“Sun”) in view of US 6,105,365 (“Deeba”). Office Action, pages 2-5. The rejection is respectfully traversed.

As taught e.g. in lines 5-15 on page 5 of the specification, the “estimating method of NOx occlusion amount of the present invention is a method for estimating NOx occlusion amount of a NOx occlusion catalyst interposed in an exhaust passage in an engine, characterized in comprising the steps of: estimating the NOx occlusion amount by using a polynomial reflected with NOx occlusion characteristics of the NOx occlusion catalyst, and correcting each coefficient of the polynomial sequentially on the basis of NOx purification rates actually measured.” In contrast, Sun merely sets coefficients c1 and c2 based on experimental data and applies the values. Therefore, the present invention is unobvious based upon the Sun disclosure. The Deeba reference does not remedy the deficiencies of the Sun reference.

In any case, this ground of rejection was not applied to claim 2 nor to claim 14. Claim 1 now recites the features of claims 2 and 14. ***Accordingly, this ground of rejection does not apply to any of claims 1 and 3-13 currently before the Examiner.***

*Rejection of claims 2-5 over Sun, Deeba, and Yang*

Claims 2-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Deeba and in further view of US 2004/0261397 A1 to Yang (“Yang”). Office Action, pages 5-6. Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Deeba, Yang, and “applicant’s admitted prior art”. Office Action, pages 6-7. These grounds of rejection were not applied to claim 14. Claim 2 has been cancelled, and claims 3

and 4 depend from claim 1 which now recites the feature of claim 14. Claim 5 depends from claim 4. Accordingly, ***this ground of rejection does not apply to any of claims 3 and 4 and 5 currently before the Examiner.***

**Rejection of claims 7-10 over Sun, Deeba, and Yang**

Claims 7-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Deeba and Yang. Office Action, pages 7-8. This ground of rejection was not applied to claim 14. Claims 7-10 depend indirectly from claim 1, which now recites the feature of claim 14. Accordingly, ***this ground of rejection does not apply to any of claims 7-10 currently before the Examiner.***

**Rejection over Sun based on "official notice"**

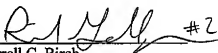
Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of "applicant's admitted prior art". Office Action, pages 8-9. Each of these rejections is respectfully traversed. This ground of rejection was not applied to claim 2. Claim 1 now recites the features of claim 2. Accordingly, this ground of rejection does not apply to claim 1 currently before the Examiner. The Examiner argues that Applicants have failed to challenge the Examiner's contention that it is well known to monitor NO<sub>x</sub> occlusion amounts and to judge that the catalyst is abnormal when an average value of each coefficient deviates from a predetermined range. Applicants "expressly traversed" this contention by the Examiner. Moreover, these sorts of "facts" are not the proper subject of official notice. As is clear from MPEP 2144.03, it is facts such as "it is old to adjust intensity of a flame in accordance with the heat requirement" and "it is desirable to make something faster, cheaper, better, or stronger" are appropriate for official notice. ***The relationship between NO<sub>x</sub> occlusion amounts and average values of the coefficients specified in claim 1 (formerly specified in claim 14) is not capable of instant and unquestionable demonstration as being well known, and the Examiner's unsubstantiated allegation with regard thereto is accordingly is not a proper basis for a rejection.***

Contact information

In view of the above amendments and remarks, Applicants believe that the present application is in condition for allowance, which action is earnestly solicited. If there are any questions, please contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

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Respectfully submitted,

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